

1 CLAIMS

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3 1. A plant cultivation system comprising a water
4 insoluble polymer contained within a porous bag or
5 enclosure.

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7 2. A plant cultivation system as in Claim 1, which is
8 placed close to the roots of plants growing in the
9 ground.

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11 3. A plant cultivation system as in Claim 1, which is
12 placed close to the roots of plants growing in pots
13 or containers.

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15 4. A plant cultivation system as in any of the previous
16 Claims, wherein the polymer is a neutral polymer.

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18 5. A plant cultivation system as in any of the previous
19 Claims, wherein the polymer is a hydrogel.

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21 6. A plant cultivation system as in Claim 5, wherein
22 the hydrogel is a particulate hydrogel.

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24 7. A plant cultivation system as in Claims 5 or 6,
25 wherein the hydrogel is a hydrogel which contains a
26 high degree of rigidity at available degrees of
27 swelling with water.

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29 8. A plant cultivation system as in Claims 5 to 7,
30 wherein the hydrogel is poly(ethylene oxide).

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32 9. A plant cultivation system as in Claim 8, wherein
33 the poly(ethylene oxide) is rendered insoluble in
34 water by physical or chemical cross-linking.

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2 10. A plant cultivation system as in Claims 5 to 9,
3 wherein the hydrogel particles are between 100
4 microns to 1cm in diameter.

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6 11. A plant cultivation system as in any of the previous
7 Claims, wherein the polymer contains additives.

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9 12. A plant cultivation system as in any of the previous
10 Claims, wherein the polymer is coloured.

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12 13. A plant cultivation system as in any of the previous
13 Claims, wherein the polymer swells rapidly on
14 contact with water.

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16 14. A plant cultivation system as in any of the previous
17 Claims, wherein one kilogram of dry polymer will
18 store 3 to 20 litres of water.

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20 15. A plant cultivation system as in any of the previous
21 Claims, wherein the porous bag is rapidly permeable
22 to water.

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24 16. A plant cultivation system as in any of the previous
25 Claims, wherein the porous bag is produced in
26 different sizes, such that it is suitable for a
27 range of plants and containers.

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29 17. A plant cultivation system as in any of the previous
30 Claims, wherein the porous bag is produced in a
31 range of different shapes, so that it is suitable
32 for a range of plants and containers.

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- 1 18. A plant cultivation system as in any of the previous
2 Claims, wherein the amount of polymer in a porous
3 bag is altered depending on the water requirements
4 of the plant for which it is to be used with.
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- 6 19. A plant cultivation system as in any of the previous
7 Claims, wherein the size of the pores in the
8 exterior material of the porous bag are as large as
9 possible without allowing the significant escape of
10 contained particulate hydrogel.
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- 12 20. A plant cultivation system as in any of the previous
13 Claims, wherein the porous bag is sealed by heat
14 sealing.
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- 16 21. A plant cultivation system as in Claims 1 to 19,
17 wherein the bag is sealed by stitching.
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- 19 22. A plant cultivation system as in Claims 1 to 19,
20 wherein the bag is sealed by glue.
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- 22 23. A plant cultivation system as in any of the previous
23 Claims, wherein the porous bag is produced from a
24 material with an air water surface contact angle
25 below 90°.
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- 27 24. A plant cultivation system as in Claims 1 to 22,
28 wherein for plants with low water requirements, the
29 porous bag is produced from a material with an air
30 water surface contact angle of greater than 90°.
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- 32 25. A plant cultivation system as in any of the previous
33 Claims, wherein the porous bag is produced from
34 cellulose or a cellulose derivative.

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26. A plant cultivation system as in any of the previous Claims, wherein the porous bag is knitted, braided, woven or in the form of felt.

27. A method of using a plant cultivation system, as described in any of the previous Claims, wherein the plant cultivation system is placed within a vessel containing a plant growth medium and a plant.

28. A method of using a plant cultivation system as in Claim 27, wherein the vessel does not contain any apertures on the lower surface.

29. A method of using a plant cultivation system as in Claim 27, wherein the vessel contains apertures to allow excess water to drain away or enter.

30. A method of using the plant cultivation system described in Claims 1 to 26, wherein the plant cultivation system is placed underneath a vessel containing a plant growth medium and a plant, and wherein the vessel contains one or more apertures in the lower surface which is in contact with the plant cultivation system.

31. A method of using the plant cultivation system described in any of Claims 1 to 26, wherein the plant cultivation system is placed on or under capillary matting in a container and a plant containing vessel is also placed on the capillary matting, wherein the plant containing vessel is provided with one or more apertures in its place.